

## TREE PROTECTION DURING CONSTRUCTION

**If a tree is treated as a living organism, with an understanding of its vital functions, it will be a constant source of profit and pleasure to men.** - N.T. Mirov, dendrologist

Mature trees have aesthetic appeal, give character to neighborhoods, improve air quality, lower summer temperatures, moderate noise, stabilize soil, control floods, create wildlife habitats, provide privacy and raise property values.

Therefore we must protect our trees in Lexington. Construction of homes, buildings, roads, and utilities is the major threat to our valuable tree assets, but this development does not have to be as destructive as it has often been. Trees are sometimes thoughtlessly taken down, but more often are damaged fatally by construction activity carried out in ignorance of a tree's needs. We must spread the message to builders and homeowners: trees are living things, and we must understand how they function in order to protect them.

First, roots gather the food. Extending from the roots into the soil are delicate root hairs, which, with the help of microscopic *mycorrhizae*, absorb nutrients from topsoil. The prime earth layer for gathering nutrients is often only about six inches deep.

Mycorrhizae are white fungi in the soil that have a symbiotic relationship with tree roots. They help the tree absorb food, and in turn are aided by the tree to grow. In fact you can improve most trees by dosing them yearly with compost tea containing mycorrhizae.

To function properly, roots must be in the top layer of soil where they have access to the AIR that circulates between tiny soil particles. If this layer is compacted by traffic or the weight of building materials, the delicate root hairs and mycorrhizae suffocate and eventually the tree will die.

Secondly, the functions of the trunk are to support the crown as it reaches for sunlight, and to house the tubes for nutrient and water distribution.

Damage to the tree trunk during construction is usually caused by machinery passing too close and gouging it. When the living cambium layer just inside the bark is cut, it cuts the life-supporting sap distribution system. Gouging the bark also allows insects and rot to penetrate. Sometimes the damage is apparent only a couple of years later when the tree fails.

Third, the crown of a tree includes the woody branches and the foliage that contains the chlorophyll essential to process food. When a builder breaks or removes major branches of a tree, the tree may become mal-nourished and eventually die.

Understanding the above vital functions, one must plan ahead to save trees. We strongly recommend the following process, outlined in more detail in the *Lexington Tree*

*Management Manual* (available free on the Town website or in print for \$5 at the DPW barn).

1. Before design begins, retain a professional to prepare a plan showing and identifying in a list all existing trees over eight inches in diameter.
2. Identify “specimen” trees (trees that are large, beautiful or rare) and design the site to preserve them.
3. Identify damaged trees and remove them early on for the safety of construction workers.
4. Identify handsome trees in the way of construction that can be transplanted elsewhere on site.
5. Once a plan has been developed to save as many trees as possible, review it with the Tree Warden or the Lexington Tree Committee to come to a mutual agreement.
6. Prune remaining trees only as needed. Follow pruning procedures in the *Tree Management Manual*.

## **PROTECTION REQUIREMENTS**

1. Before demolition and land clearing begin, protect all trees to be saved with barriers at their critical root zones (the drip line or outer edge of their leaf canopies). **Construct barriers of sturdy posts and highly visible plastic mesh or other durable fencing to prevent heavy equipment from compacting soil, damaging roots, breaking branches and scarring the trunk.**
2. Spread three inches of mulch in the root zone to designate a no-trespass area.
3. Don’t drive or park vehicles or equipment, or stockpile anything within the tree root zones.
4. Don’t dump debris or chemicals within the root zones.
5. Don’t allow water to flood the root zone for over a day.
6. Don’t fasten nails or screws to the trees.
7. No fires within 100 yards of root zones.
8. No debris burial within 100 feet of root zones.
9. Place new underground utility lines outside the root zones.

10. If something must be built within the root zone, it may still be possible to save the tree if the following extra care is given:

- use hand tools instead of machines;
- tunnel instead of trench through root zones;
- construct retaining walls to preserve the original grade.

11. During dry spells, thoroughly water trees at least once a week.

Chapter 87, Section 12, of the Massachusetts General Laws provides penalties of up to a \$500 fine or six months imprisonment for “negligently ... injuring or destroying a tree in a public way.” So it is not only responsible, it is in your best interest to take care of trees. We wish you all success in preserving your mature trees. Lexington needs them!

-- By John Frey, Landscape Architect and Chairman of the Lexington Tree Committee